WHAT IS CLAIMED IS :

1. A method for labeling tumor tissues or cells by utilizing phycoerythrin comprises the steps of:

adding effective amount of phycoerythrin to tissues or cells and incubating for a certain period;

exposing said tissues or cells containing effective amount of phycoerythrin with appropriate wavelength of light to stimulate phycoerythrin to emit fluorescence; and

monitoring said fluorescence to identify the location and range of tumor tissues or cells.

2. The method as in claim 1, wherein said phycoerythrin comprises R-phycoerythrin or B-phycoerythrin.

3. The method as in claim 2, wherein said phycoerythrin is R-phycoerythrin.

4. The method as in claim 1, wherein the length of said certain period of incubation varies according to cell types, generally from 0.5 hour to 24 hours.

5. The method as in claim 1, wherein said wavelength of light is between 488 and 633 nm.

6. The method as in claim 2, wherein the wavelength for stimulating said

R-phycoerythrin is at 488 nm.

7. The method as in claim 2, wherein the wavelength for stimulating said B-phycoerythrin is at 543 nm.

8. The method as in claim 1, wherein said effective amount of phycoerythrin is between 0.5 and 40 ug/ml.

9. The method as in claim 8, wherein said effective amount of phycoerythrin is between 0.5 and 10 ug/ml.

10. The method as in claim 1, wherein said fluorescence is monitored at wavelength above 565 nm.

11. The method as in claim 1, wherein said tumor can be solid or liquid tumor.

12. The method as in claim 11, wherein said tumor comprises: lymphoma, gastric cancer, hepatoma, colon cancer, lung fibroma, thyroid cancer, cervical carcinoma and brain tumor.

13. The method as in claim 1, wherein said labeling tumor tissues or cells means that the tumor-recognizing and tumor-entering ability of phycoerythrin is utilized in order to achieve the performance of labeling tumor tissues or cells.

14. A diagnostic kit for labeling tumor tissues or cells, comprising effective amount of phycoerythrin.

15. The diagnostic kit as in claimed 14, wherein said phycoerythrin comprises R-phycoerythrin or B-phycoerythrin.

16. The diagnostic kit as in claimed 14, wherein said phycoerythrin is R-phycoerythrin.

17. A method for labeling tumor tissues or cells by utilizing phycoerythrin comprises using the diagnostic kit according to claim 14.

18. The method as in claim 1, which can further comprises a step of analyzing the level of fluorescent staining of tumor so as to judge the stage of tumor.

19. The method as in claim 18, wherein said analyzing the level of fluorescent staining of tumor can be achieved through immunofluorescence staining or flow cytometry.